



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,716	09/23/2005	Satoshi Furuta	4700.P0319US	5997
23474 7590 09/28/2007 FLYNN THIEL BOUTELL & TANIS, P.C. 2026 RAMBLING ROAD KALAMAZOO, MI 49008-1631			EXAMINER HAILEY, PATRICIA L	
			ART UNIT 1755	PAPER NUMBER
			MAIL DATE 09/28/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/550,716

Applicant(s)

FURUTA, SATOSHI

Examiner

Patricia L. Hailey

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 09/23/05; 08/13/07.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 1755

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Applicants' Priority Document was filed on September 23, 2005.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. ***Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by***  
***“Preparation of a Solid Superacid of Sulfated Tin Oxide with Acidity Higher than that of Sulfated Zirconia and Its Application to Aldol Condensation and Benzoylation,” by Hiromi Matsuhashi, et al. (Applicants' submitted art, hereinafter “the Matsuhashi Article”).***

The Matsuhashi Article teaches the preparation of a solid superacid of sulfated tin oxide, wherein a tin oxide gel (prepared by hydrolysis of  $\text{SnCl}_2$ ) is washed with ammonium acetate solution (“organic acid ions”), and then is exposed to aqueous sulfuric acid (a “sulfate-group containing compound”) and calcined. See the Abstract of the Matsuhashi Article.

In view of these teachings, the Matsuhashi Article anticipates claim 1.

Art Unit: 1755

**4. Claims 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawamata et al. (U. S. Patent No. 4,208,537).**

Kawamata et al. disclose a catalyst comprising chromium oxide, tin oxide, iron oxide, and sulfate radical, in atomic ratios of Cr:Sn:Fe:S that range from 100:0.1:0.01:0.25 to 100:60:20:20. See col. 4, lines 46-53, as well as col. 3, line 63 to col. 4, line 15, which discloses a catalyst comprising chromium oxide, tin oxide, and sulfate radical, such that the atomic ratio of Cr:Sn:S ranges from 100:0.1:0.25 to 100:60:20.

Conversion of the aforementioned atomic ratios to weight percentages results in tin contents exceeding 30 weight percent.

Because Kawamata et al. disclose a catalyst having more than 30 weight percent tin and sulfate content, Applicants' claim limitations regarding the "absolute value of argon adsorption heat" and "infrared reflection spectrum" are considered inherently present in the catalyst of Kawamata et al.

In view of these teachings, Kawamata et al. anticipate claims 3 and 4.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1755

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Matsushita Article in view of Obara et al. (U. S. Patent No. 4,041,144).**

The Matsushita Article is relied upon for its teachings with respect to claim 1. Although this article teaches the formation of a tin oxide gel, the reference does not teach or suggest the employment of metastannic acid.

Obara et al. is relied upon for its teachings that it is known in the art to produce stannic oxide hydrate (considered to read upon "crystalline tin oxide") from  $\beta$ -stannic acid. See col. 5, lines 31-48 of Obara et al., which also discloses the formation of  $\beta$ -stannic acid by oxidizing metallic tin with nitric acid (which is disclosed in Applicants' specification as a preferred method of preparing metastannic acid, see paragraph [0008]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the Matsushita Article by incorporating therein the technique of producing tin oxide from  $\beta$ -stannic acid as suggested by Obara et al., and thereby obtain Applicants' invention.

Art Unit: 1755

***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia L. Hailey whose telephone number is (571) 272-1369. The examiner can normally be reached on Mondays-Fridays, from 7:00 a.m. to 3:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 1700 Receptionist, whose telephone number is (571) 272-1700.

Art Unit: 1755

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Patricia L. Hailey/plh  
Examiner, Art Unit 1755  
September 24, 2007

  
J.A. LORENZO  
SUPERVISORY PATENT EXAMINER